

REMARKS

Status of Claims:

Claims 1-48 are present for examination.

Prior Art Rejection

Claims 1, 17, 25, 33 and 41 stand rejected under 35 USC 103 as unpatentable over Bahns (6,020,747) in view of Yoshida (6,137,295).

The Examiner's rejection is respectfully traversed.

The Examiner has applied the Bahns patent for teaching a computer program, data processing, and probe testing apparatus for testing an end shape of a contact probe (14, 16) brought into pressure contact with a contact pad (32a, 32b, 32c, 32d) on an integrated circuit (28). The Examiner points to column 6, lines 34-41. The Examiner further cites Bahns for teaching a means for detecting a surface shape (surface test) of at least one of the contact pads and the contact probe as 3-dimensional data (X-Y-Z measurements). In this connection, the Examiner refers to column 6, line 62 through column 7, line 25.

Applicant points out that Bahns does not disclose or teach any means for detecting the surface shape of at least one of the contact pad and the contact probe as 3-dimensional data. While the Examiner identifies the contact probes as elements 14, 16, these elements are in fact referred to by Bahns as "holders" and they are utilized to hold fibers 10 and 12. It is the fibers 10 and 12 that make contact with the contact pads positioned on the circuit 28 to be measured. As explained in column 6, beginning at line 26, these holders 14 and 15 are positioned over the test pads so that the fibers 10 and 12 are bent in order to contact the pads. The bending of the fibers assures good electrical connection between the pads and the fibers. Further, as explained in column 7, lines 1-25, the electrical evaluation measurements may be made continuously as the fibers are slid from contact pad to contact pad. There is no need for the fibers 10 and 12 to slow down or come to a stop in the X-Y plane during the testing procedure. Moreover, Bahns states as follows:

In addition, there is no need for the fibers 10 and 12 to be moved in the Z (vertical) direction during measurements. Rather, the fibers make contact continuously with a wide variety of surfaces by dragging them over the surface because they are capable of bending upon encounters with surface imperfections (e.g., pads or electrical leads) and returning to their original shape when no surface imperfection is encountered. The fiber portion of the electrical contact probe of the invention eliminates the need for starts and stops in the X-Y plane and motion in the Z plane, thereby reducing circuit testing time (estimated reductions of about 20%). (Column 7, lines 12-22.)

Thus, in contrast to taking three dimensional measurements as recited in applicant's claims, Bahns actually teaches that motion in the Z direction is eliminated and that starts and stops in the X-Y plane are also eliminated so that the probes may be slid continuously over the surface of the circuit to be measured. Moreover, the measurement data is simply the data as measured on the current meter 20 shown, for example, in Figure 1 or the Ohmmeter 74 shown in Figure 3. Thus, even if the fibers were moved in the Z direction, there is no actual measurement of any Z data. Indeed, the only measurement is the electrical conductivity or resistance between the two fibers 10, 12 and no shape measurement is even detected with respect to the probe or the surface to be measured, As such, the Bahns teaching is completely lacking in any relevance to applicant's claimed invention.

The Yoshida patent teaches the use of detecting secondary electrons in an electron beam measurement wherein the secondary electrons are influenced by a potential of a diffusion region in the integrated circuit. While the fourth embodiment of Yoshida mentions utilizing an optical microscope 74 or even a miniature camera, these observations are made by a human operator, and they do not involve the detection of three dimensional data which is subsequently analyzed to determine a defective probe. Indeed, the only purpose of utilizing the microscope in Yoshida is to correctly position the probe (needle 73) over the metal pad – not to measure any probe/contact defect.

In view of the deficiencies of the Bahns and Yoshida references, it may readily be seen that applicant's claims are clearly differentiated from the prior art and are patentable

thereover. Thus, the Patent and Trademark Office has simply not made out a *prima facie* case of obviousness under the provisions of 35 USC 103.

Claim Amendments:

Applicant has amended the claims in order to remove the “means” language so that the claims will not be interpreted according to the sixth paragraph of Sec. 112. The claims have not been amended for any reasons related to patentability.

Conclusions:

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 12-21-04

By David A. Blumenthal

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5407
Facsimile: (202) 672-5399

David A. Blumenthal
Attorney for Applicant
Registration No. 26,257